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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/484,844 | 01/18/2000 | Hassan Y. Elnagar | SU-7152 | 1182 |

7590 08/13/2002

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| EXAMINER | |
|---|---|
| STOCKTON, LAURA LYNNE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1626 | |

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17

Please find below and/or attached an Office communication concerning this application or proceeding.

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| EXAMINER |
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| ART UNIT | PAPER NUMBER |
|---|---|
| | 17 |

DATE MAILED:

This is a communication from the examiner in charge of your application.
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## OFFICE ACTION SUMMARY

☒ Responsive to communication(s) filed on May 10, 2002 and May 17, 2002

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), ~~30 day(s),~~ whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**

☒ Claim(s) 2-12 and 14-135 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
☐ Claim(s) _____ is/are allowed.
☒ Claim(s) 2-12 and 14-135 is/are rejected.
☐ Claim(s) _____ is/are objected to.
☐ Claim(s) _____ are subject to restriction or election requirement.

**Application Papers**

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
☐ The specification is objected to by the Examiner.
☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.
☐ received in Application No. (Series Code/Serial Number) _____.
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
*Certified copies not received: _____.
☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

☐ Notice of Reference Cited, PTO-892
☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 13
☐ Interview Summary, PTO-413
☐ Notice of Draftperson's Patent Drawing Review, PTO-948
☐ Notice of Informal Patent Application, PTO-152

--SEE OFFICE ACTION ON THE FOLLOWING PAGES--

09/484,844

U.S. GPO: 1996-404-496/40517

## DETAILED ACTION

**Claims 2-12 and 14-135 are pending in the application.**

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 10, 2002 has been entered.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-12 and 14-135 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogers {U.S. Pat. 2,392,505}, Rogers {U.S. Pat. 2,398,598}, Paterson {U.S. Pat. 2,779,764}, Paterson {U.S. Pat. 3,147,259}, Wolf et al. {U.S. Pat. 2,920,997}, Waugh et al. {U.S. Pat. 3,121,715}, Cole {U.S. Pat. 4,621,096}, Girard et al. {U.S. Pat. 4,560,766}, Girard et al. {U.S. Pat. 4,654,424}, Puzig {U.S. Pat. 4,677,130}, Lee et al. {U.S. Pat. 4,745,189}, Bhattacharya {WO 97/43264} and Jolles {"General Methods of Bromination", Bromine and its Compounds, 1966, Ernest Benn, London, page 365}, each taken alone or in combination with each other.

***Determination of the scope and content of the prior art (MPEP §2141.01)***

Applicants claim a process for the N-halogenation of a compound having in the molecule at least one halogenatable amido or imido functional group which process comprises concurrently, or substantially concurrently, feeding to a reaction zone an aqueous solution or slurry formed from an inorganic base (e.g. sodium hydroxide) and a compound having in the molecule at least one halogenatable amido or imido

nitrogen atom (e.g. a hydantoin) and a brominating agent and/or a chlorinating agent.

Each of the above cited prior art teach a process of N-halogenation of compounds having at least one N-halogenatable amide or imido nitrogen (e.g. a hydantoin) by reacting such a compound with a halogenating agent (e.g. chlorine) in the presence of an inorganic base (e.g. sodium hydroxide or sodium bicarbonate) and water.

Rogers '505 teaches a process wherein a disubstituted hydantoin is reacted with chlorine and other halogen in an aqueous medium while maintaining the reaction mixture in an alkaline condition (page 1, column 2, lines 6-60; page 2, column 1, lines 1-8; Examples 1-4 on page 2, column 2, lines 4-54).

Rogers '598 teaches a process of making 1,3-choro-5-methyl-5-isobutyl hydantoin where 5-methyl-5-isobutyl-hydantoin is dissolved in an aqueous alkaline solution which solution is rendered alkaline by the use of any basic material, such as sodium hydroxide, and then gaseous

chlorine is passed into the aqueous alkaline solution (page 2, column 2, lines 4-20; and page 2).

Paterson '764 teaches a process of making a N-bromo-N-chloro-5-substituted hydantoin wherein a 5-substituted hydantoin is mixed with water containing known amounts of an alkalizing agent, such as sodium hydroxide, and bromine is added to the mixture in a calculated amount while the rest of the imido-hydrogen is substituted by chlorine (column 2, lines 3-24; and Examples 1-4).

Paterson '259 teaches a process of making halogen carriers by treating an organic nitrogen compound (e.g. a hydantoin) under aqueous alkaline conditions with a bromine producing compound, such as bromine, and passing chlorine into the resultant mixture to produce the desired N-bromo compound (column 2, lines 36-58; column 3, lines 40-43; and Example 8 in column 6).

Wolf et al. '997 teach a process of making halogen substituted hydantoins by processes disclosed in Examples I and II (column 2).

Waugh et al. '715 teach a process of making N-brominated organic compounds (e.g. a hydantoin) by reacting bromine with a N-hydrogen organic compound in an alkaline or basic solution and in the presence of a chloro agent (column 2, lines 1-41; and Examples 1-16).

Cole '096 teaches a process of making a dihalogenated dimethylhdydantoin by reaction of dimethylhydantoin and the corresponding source of halogen in water. The halogenation step is carried out in the presence of base (e.g. sodium hydroxide) to neutralize the acid formed in the halogenation step. The inorganic source of –OH and the halogenating agent are added concurrently at such a rate that the pH is maintained in the range of about 6.8-7.0 (column 2, lines 43-57; and Examples I-IV).

Girard et al. '766 teach a process of making 1,3-dichloro-5,5-diethylhydantoin by chlorinating diethylhydantoin (obtained from the reaction of 3-pentanone, potassium cyanide and ammonium carbonate) with chlorine gas at a controlled pH of 7.15 to 7.5 using a solution of

sodium hydroxide (Example Six, column 6, lines 63-68 and column 7, lines 1-8).

Girard et al. '424 teach a process of making a halogenated hydantoin product which comprises halogenating under controlled pH conditions of from 6.0 to about 8.0 using a base such as sodium hydroxide (column 3, lines 1-47; column 4, lines 65-68; and Example Three in column 5).

Puzig '130 teaches a process of making 1-bromo-3-chloro-5,5-dimethylhydantoin by the process of Example 1 in column 6.

Lee et al. '189 teach a process of preparing N-halogenated organic heterocyclic compounds (e.g. a hydantoin) which have sufficient particle size by treating 5-substitutd hydantoin in an aqueous mixture under alkaline conditions and in the presence of a halogenated organic compound (column 5, lines 3-12; and Examples I to IV).

Bhattacharya {WO 97/43264} teaches a process of preparing a mixed 1,3-dihalo-5,5-dialkyl-hydantoin by treating a 5-methyl-5-propyhydandoin in water in the presence of NaOH with bromine and

then chlorinating the resulting mixture (page 9, lines 8-21; and Example 7 on page 13).

Jolles teaches a process of making 1,3-dibromo-5,5-dimethylhydantion by dissolving 5,5-dimethyl-hydantoin and sodium carbonate in water and adding bromine.

***Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)***

The difference between the prior art and the instant claims is that the instant invention requires that the reactants/starting materials be added concurrently, or substantially concurrently into a reaction zone.

***Finding of prima facie obviousness--rational and motivation (MPEP §2142-2413)***

It is obvious to add in ingredients simultaneously which were previously added sequentially. *In re Tatincloux*, 108 USPQ 125. Further, since all of the above cited prior art teach similar processes of making N-halogenation compounds, the combination of the prior art references would also teach the instant claimed invention.

One skilled in the art would thus be motivated to utilize the processes taught by the above cited prior art to arrive at the instant claimed invention with the expectation of obtaining a N-halogenation compound which would be useful as, for example, a fungicide. Therefore, the instant claimed process would have been suggested to one skilled in the art.

***Response to Arguments***

Applicants' arguments filed May 10, 2002 have been fully considered. Applicants argue that the present invention calls for concurrently, or substantially concurrently, feeding to a reaction zone the specified components. Applicants argue by adjustment and control of temperature enables rapid formation of product in high yield and particle size. Applicants argue that the cited prior art does not address the limitations in the instant claims such as beneficial consequences of concurrently, or substantially concurrently, feeding to a reaction zone and specified pH ranges. Applicants argue that the instant invention is

patentable over the cited prior art because limitations found in dependent claims such as a co-feeding process in which the reaction is started in the presence of a heel from a prior reaction, the feeds are fed subsurface, the feeds are fed to a mixing device, a cofeeding process which is conducted in a continuous or batch mode, etc.

All of Applicants' arguments have been considered but have not been found persuasive. As stated above, it is obvious to add in ingredients simultaneously which were previously added sequentially. *In re Tatincloux*, 108 USPQ 125. In the instant specification on page 18, the disclosure states, "concurrent" does not exclude the possibilities of inconsequential interruptions taking place during the feeds." Further, selection of particle size is not a patentable modification in the absence of unobvious results. *In re Rose*, 105 USPQ 237 (C.C.P.A. 1955). Additionally, it is well established that batch and continuous processes are not patentably distinct. *In re Dilnot*, 138 U.S.P.Q. 248 (C.C.P.A. 1963).

The prior art does discuss maintaining a specific pH range. See, for example, Girard et al. '424, column 3, lines 28-35. Instant claim 9, for example, states that the temperature is in the range of about zero to about 90°C. Rogers '505, for example, teach that the desired reaction may be carried out at elevated temperatures and gives a preferred range of about 20 to 50°C (column 2, lines 46-53). Lee et al. '189 teach a subsurface feed (Example 1 in column 8). Therefore, absent unexpected, unobvious and beneficial superior results of the instant claimed invention over the above cited prior art in a side-by-side showing, the instant claimed invention is obvious to one skilled in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura L. Stockton whose telephone number is (703) 308-1875. The examiner can normally be reached on Monday-Friday from 6:00 am to 2:30 pm. If the examiner is out of the Office, the examiner's supervisor, Joseph McKane, can be reached on (703) 308-4537.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1235, 308-0196 or 305-3290.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4556, 308-4242, 305-1935 or 308-2742.

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Patent Examiner
Art Unit 1626, Group 1620
Technology Center 1600

August 12, 2002